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HINGE

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6 Claims. (Cl. 16—166)

This invention relates to improvements in hinges, and refers particularly to hinges of the concealed type. This invention aims, among other things, to provide a hinge consisting of angle-shaped hinge plates which can be quickly and cheaply completed in a punch press, and links which can be just as readily fabricated also in a press, in addition to which only pins and washers are employed which are made in automatic machines, and subsequently the entire hinge assembled in a press. Thus I aim to provide a hinge in the manufacture and assembly of which only the quickest, cheapest and simplest operations are performed, and the more expensive forms of machining completely eliminated.

Another object of the invention is to provide a hinge wherein one pair of angle-shaped hinge plates is mounted upon a door frame and another pair of angle-shaped hinge plates upon a door, wherein two sets of spaced links are pivoted together, and wherein a pin extends through each set of links and its extremities travel in opposed slots formed in one pair of hinge plates as the door is opened and closed.

A further object of the invention is to provide such a hinge wherein a pivot pin is a tight fit through one set of links and bosses formed thereon, and one of the other set of links is mounted for pivotal movement upon each boss.

Yet another object of the invention is to provide such a hinge with means holding each set of links in parallel and spaced relation one with another throughout their entire length, to afford clearance between each adjacent pair of links of one set for movement of one link of the other set.

Having thus briefly and broadly stated some of the major objects and advantages of the invention I will now proceed to describe it in detail with the aid of the accompanying drawing in which:

Figure 1 illustrates a horizontal section through the hinge when closed.

Figure 2 is a horizontal section on the line 2—2 of Figure 3 showing the hinge when open.

Figure 3 is a vertical section on the line 3—3 of Figure 2.

Figure 4 is a perspective view of one of the links mounted for sliding movement between the hinge plates secured to the door frame.

Figure 5 is a perspective view showing one of the links mounted between the hinge plates secured to the door for sliding movement.

Referring to the drawing, 1 designates a door

frame and 2 denotes a door the edge faces of which are recessed at 3 and 4 respectively. Mounted as by screws 5a upon the door frame 1 are two angle-shaped hinge plates 5 having legs 6 which extend rearwardly in the recess 3, and which may be held in spaced relation as by dowels 7. Formed in the legs 6 are aligned slots 8. Similarly upon the door 2 two angle-shaped hinge plates 9 are secured as by screws 9a and have legs 10 which extend into the recess 4. These legs may be held in spaced relation by a dowel 11, and formed in the said legs are aligned slots 12.

It will be noted from the drawing that each opposed pair of slots 8 and 12 are differently curved in order to provide the desired path of movement for the door as the latter is opened and closed.

All the links 15 are identical and each has a plurality of bosses 16, 17 and 18 formed on one and the same side thereof. Through the links and their bosses 16, 17, and 18 openings 16a, 17a and 18a respectively are provided. Through the openings 16a a guide pin 19 extends, the extremities of which are slidable in the two aligned slots 8; through the openings 17a a pivot pin 20 extends; and through the openings 18a a retaining pin 21 is provided. The pin 20 is of substantially the same length as the sum total of the width of the links 15 and the bosses thereon through which that pin projects whereas the extremities of the pin 21 extend into the opposed legs 10. All the pins 19, 20 and 21 are a press fit through the links thereby holding the latter in correct spaced and parallel relation to one another.

A second set of links 22 is provided. Each link has bosses 23 and 25 on one and the same side thereof. Through the links and their bosses 23 and 25 openings 23a and 25a respectively are formed. Each link 22 is also provided with an opening 24 through which one of the bosses 17 extends so that each link 22 is pivoted on the boss 17 of one link 15. Through the openings 23a a guide pin 26 projects the ends of which are each slidable in one slot 12; and through the openings 25a a retaining pin 27 is arranged which is substantially the same length as the sum total of the thickness of all the links 22 and the depth of their bosses 25 plus the thickness of the legs 6 in which the extremities of the said pin 27 terminate. In this case too the pins 26 and 27 are a tight fit in the links 22 through which they extend thereby holding the several links in spaced and parallel relation.